

RESERVE COPY
PATENT SPECIFICATION



Application Date: July 4, 1933. No. 18924/33.

422,270

Complete Specification Left: June 21, 1934.

Complete Specification Accepted: Jan, 4, 1935.

PROVISIONAL SPECIFICATION

**Improvements in and relating to Telescopic Sights, especially
for Rifles**

We, JOHN WILLIAM HASSELKUS, and
OWEN GEORGE HAY, both of Optical
Works, 3, North Side, Clapham Common,
London, S.W. 4, both British subjects,
do hereby declare the nature of this invention to be as follows:—

The invention relates to gun-sighting devices, especially for rifles.

Hitherto it has been the general practice in connection with the type of telescopic sight to which the present invention relates to move the pointer (graticule, stadia line or the like) transverse to the optical axis so as to obtain different elevations for the gun to correspond with variations of range.

In practice, such sights are subjected to considerable shock when the gun is fired and a main object of the present invention is to provide an improved construction adapted to give the moving parts of the sight greater strength and stability.

With such an object:—

The present invention consists in a sighting device for the purpose indicated in which the pointer is fixed in relation to the optical axis and the object sighted is moved in relation to the field by means of a prism or system of prisms.

The invention also consists in the improved sighting devices and guns fitted therewith as hereinafter described or indicated.

In carrying the invention into effect according to one form as applied to a rifle, the pointer may be photographed or etched on glass and is rigidly secured at the focus of the object glass.

In order to provide for different ranges a prism preferably achromatic is mounted between the pointer and the object glass.

The necessary movement can be given to it by any suitable means such as a pin moving in a longitudinal slot within an outer tube and in a helical slot in an inner tube which can be caused to rotate by rotation of a knurled sleeve surrounding the object glass and graduated to indicate ranges.

The rest of the sighting device may be of ordinary construction, the image of the object formed in the focus of the object glass being first erected and then magnified in the ordinary manner.

In some cases the sight may be of the variable-power type.

With such an arrangement it will be seen that when the prism is positioned in its nearest position to the pointer there will be practically no lateral displacement of the object sighted in relation thereto. If, however, the prism is moved towards the object glass this lateral displacement of the image is increased and will vary directly with the longitudinal movement of the prism along the optical axis.

Whatever the constructional form of the present invention, the sight should be rigidly secured to the gun.

With the construction described it is found that greater stability is secured to resist the shock of firing than with sighting devices for the same purpose hitherto proposed.

Variations may be made in the details of the construction of the sighting devices described above without exceeding the scope of the invention as defined in an earlier part of this specification.

Dated this 3rd day of July, 1933.

MARKS & CLERK.

COMPLETE SPECIFICATION

**Improvements in or relating to Telescopic Sights, especially
for Rifles**

We, JOHN WILLIAM HASSELKUS, and
OWEN GEORGE HAY, both of Optical
Works, 3, North Side, Clapham Common,
London, S.W. 4, both British subjects,
do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly de-

[Price 1/-]

Price 4s 6d

scribed and ascertained in and by the following statement:—

The invention relates to telescopic gun-sighting devices of the kind in which a longitudinally adjustable prism or system of prisms is interposed between the object glass and eye-piece, so that the field of

view is movable with respect to a fixed pointer (graticule, stadia line or the like) so as to obtain different elevations of the gun to correspond with variations of range.

The present invention consists in a telescopic gun-sighting device of the kind indicated, in which the pointer or the like is rigidly secured at the focus of the object glass, as by photographing or etching on glass.

Referring to the accompanying drawings, which illustrate one form of the invention by way of example:—

Figures 1 and 1a show a sectional elevation through a telescopic sight;

Figure 2 shows a cross-section on the line 2—2 of Figure 1 to indicate one form of aiming pointer; and

Figure 3 a cross-section on the line 3—3 of Figure 1.

Figure 4 shows a cross-section to a larger scale on the line 4—4 of Figure 1.

Figure 5 being a corresponding plan of the key and crossing slots; while finally

Figure 6 shows a cross-section similar to Figure 4 but on the line 6—6 of Figure 1a and

Figure 7 a corresponding plan of the key and crossing slots.

In carrying the invention into effect according to one form as applied to a telescopic sight for a rifle, the main structural element of the sight consists of the body tube, 2, carrying at one end the achromatic object glass, 3, and at the other end the adjustable eye-piece, 4; at an intermediate point, the two-part field lens, 5, is arranged with the pointer, 6, (see Figure 2) photographed or etched thereon and disposed in the focus of the object glass, 3, the field-lens, 5, being rigidly secured in position by means of its cell, 7, which is a good fit in the body tube, 2, and held in place therein by screws, 8.

In order to provide for different ranges, an achromatic prism, 9, in a holder, 10, is mounted between the pointer, 6, and the object glass, 2, so that it can be moved longitudinally.

The necessary movement can be given to it by any suitable means, e.g., as illustrated, a key, 11, moving in a straight longitudinal slot, 12, in the body tube, 2, and in a helical slot, 13, in an inner tube, 14, screwed at 14a, into the body tube, 2, and rotatable by a knurled sleeve, 15, surrounding the object glass, 3, and conveniently graduated to indicate the positions to which the sleeve should be moved to correspond with selected ranges.

The key, 11, is of a diamond shape as shown in Figure 5, and is shouldered at 16, (see Figure 4) to bear against the outside of the prism holder, 10, in which

position it is held fixed by a headed screw, 17, screwed into it.

The sleeve, 15, is provided with a pin, 18, projecting inwards through a circumferential slot, 19, (see Figure 3) extending about 120° round the body tube, 2, the pin, 18, passing into a hole in the thickened end, 20, of the inner tube, 14.

Holes, 21, 22, 23, are provided respectively in the inner tube, 14, the prism holder, 10, and the body tube, 2, for lining up the parts in mid position, and a plate, 24, which may be a name plate, is arranged to cover the longitudinal slot, 12.

The rest of the sighting device may be of ordinary construction, the image of the object formed in the focus of the object glass being first erected and then magnified in the ordinary manner.

In some cases, e.g., as illustrated, the sight may be of the known variable-power type, the erecting lens combination, 25, being mounted in a cell, 26, movable longitudinally like the prism holder, 10. For this purpose a straight longitudinal slot, 27, is formed in the body tube, 2, and is covered by a sleeve, 28, screwed at 29, on the body tube, 2, and provided with a helical slot, 30, the sleeve, 28, being surrounded by the knurled cover tube, 31, secured to the sleeve, 28, by the screws, 32. A diamond-shaped key, 33, passes into the straight and helical slots, 27 and 30, (see Figure 7) and is secured to the cell, 26, of the erecting lens combination by the screw, 34.

With such an arrangement it will be seen that when the prism, 9, is disposed in its nearest position to the pointer, 6, there will be practically no lateral displacement of the object sighted in relation thereto. If, however, the prism, 9, is moved towards the object glass, 3, this lateral displacement of the image is increased and will vary directly with the longitudinal movement of the prism along the optical axis.

Whatever the constructional form of the present invention, the sight should be rigidly secured to the gun in such a position that the line of sight is deflected in a vertical plane.

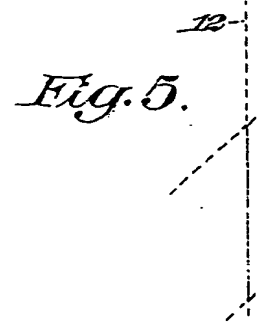
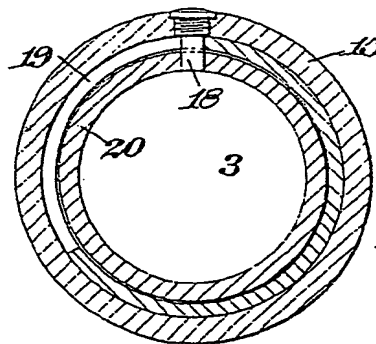
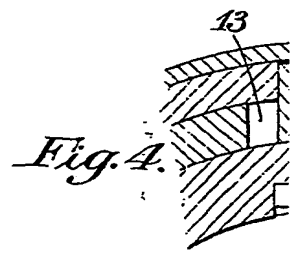
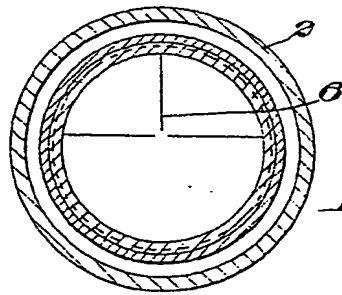
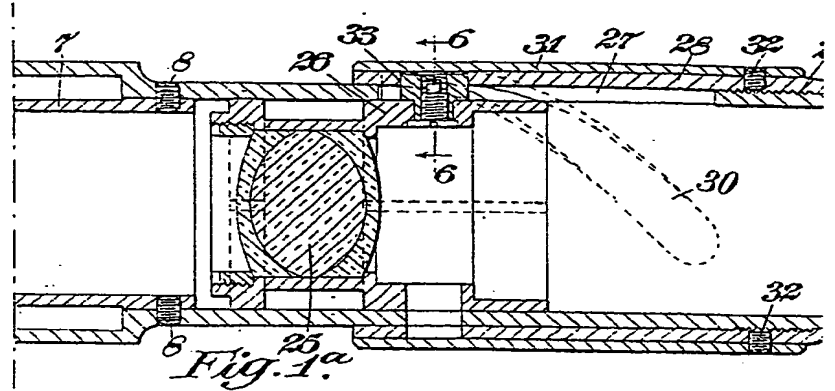
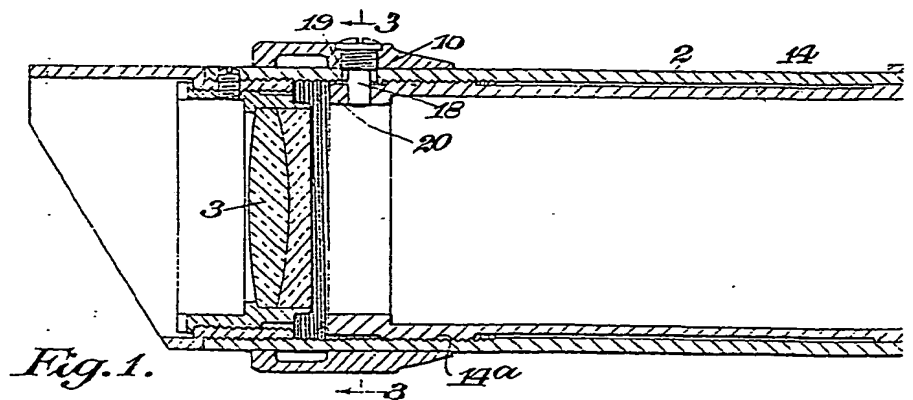
A sight as shown in Figures 1 and 1a and fixed to a rifle, say for deer-stalking purposes, might have a length over all of about 10 inches.

With the constructions described it is found that great stability is secured to resist the shock of firing.

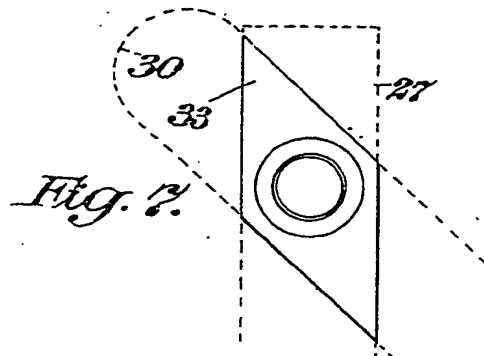
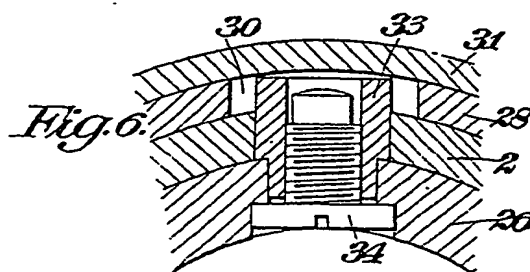
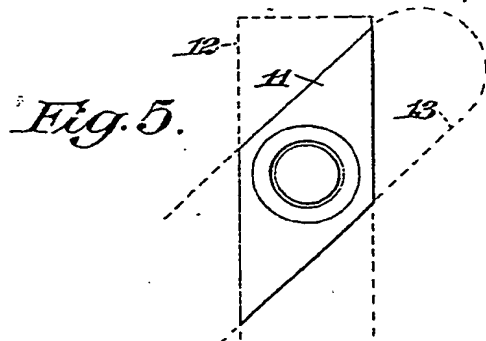
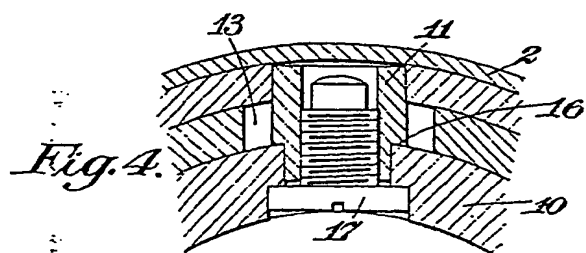
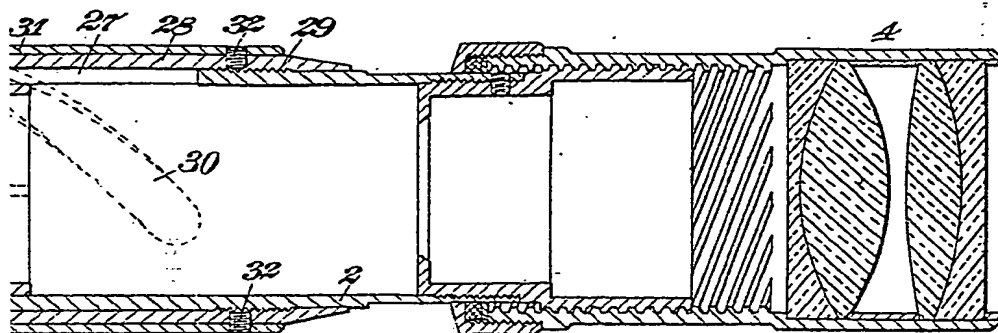
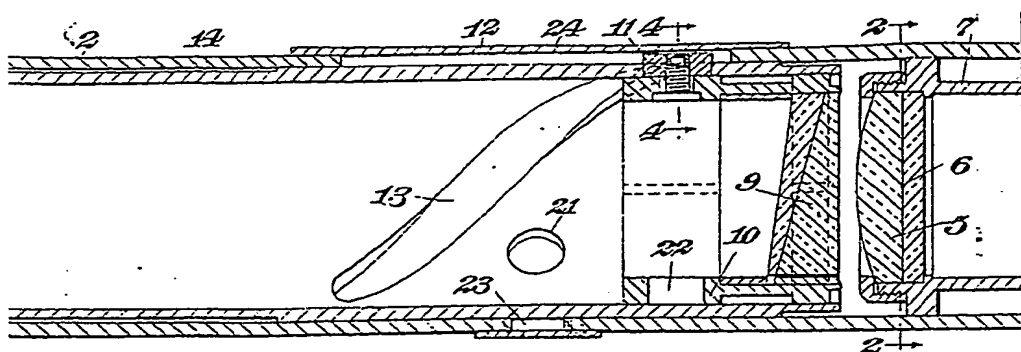
Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A telescopic gun-sighting device of the kind indicated, in which the pointer or the like is rigidly secured at the focus of the object glass as by photographing or etching on glass, substantially as described. 5
2. A sighting device as claimed in Claim 1, in which longitudinal movement is given to the prism element by providing its holder with a key movable in a straight slot in one tube and a helical slot in another, substantially as described. 10
3. A sighting device as claimed in Claim 2, in which the straight slot is formed in the body tube of the device and the helical slot in a co-axial rotatable tube, substantially as described. 15
4. A sighting device as claimed in Claim 3, in which the rotatable tube is disposed within the body tube and is rotatable by a pin passing through a circumferential slot in the body tube and moved by an external sleeve, which may be graduated to indicate the positions to which the sleeve should be moved to correspond with selected ranges, substantially as described. 20 25
5. A sighting device as claimed in Claim 1, in which both the prism element and also the erecting lens combination of a variable-power telescope are movable in a common body tube, substantially as described. 30
6. Improved telescopic gun-sighting devices substantially as hereinbefore described with reference to the accompanying drawings. 35
- Dated this 1st day of June, 1934.
MARKS & CLERK.

Leamington Spa: Printed for His Majesty's Stationery Office, by the Courier Press.—1935.

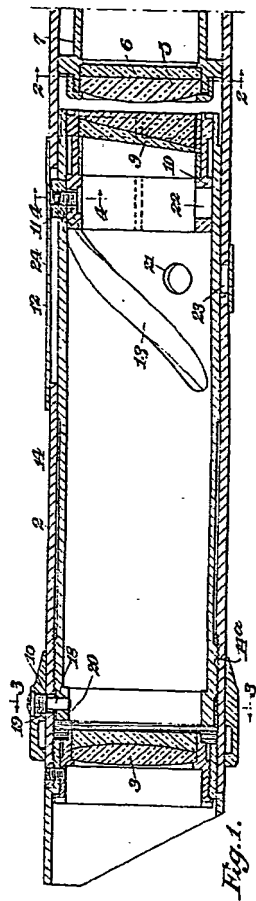


[This Drawing is a reproduction of the Original on a reduced scale.]



422,270 COMPLETE SPECIFICATION

1 SHEET



[This Drawing is a reproduction of the Original on a reduced scale.]

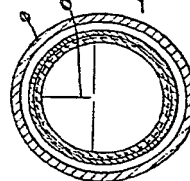
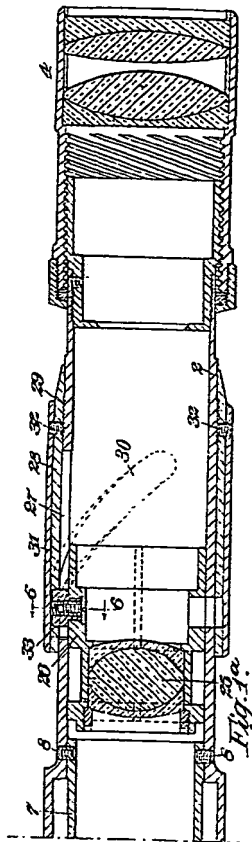


Fig. 2.

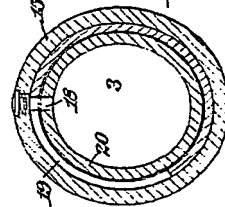


Fig. 3.

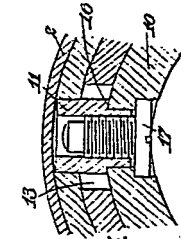


Fig. 4.

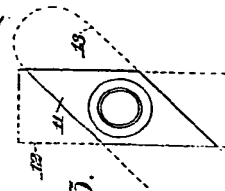


Fig. 5.

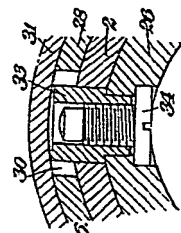


Fig. 6.

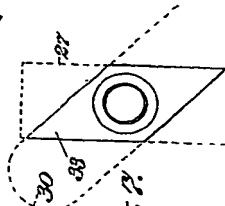


Fig. 7.

Maly & Sons, Photo Lith